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INFO MISSILE TECHNOLOGY CONTROL REGIME COLLECTIVE

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SUBJECT: MISSILE TECHNOLOGY CONTROL REGIME (MTCR): NORTH KOREA'S MISSILE PROGRAM

Classified By: ISN/MTR DIRECTOR PAM DURHAM FOR REASONS 1.4 (B), (D), AND (H).

¶1. (U) This is an action request. Please see paragraph 2.

¶2. (C) ACTION REQUEST: Department requests Embassy Paris provide the interagency cleared paper "North Korea's Missile Program" in paragraph 3 below to the French Missile Technology Control Regime (MTCR) Point of Contact (POC) for distribution to all Partners. Department also requests Embassy London provide paper to the MTCR Information Exchange (IE) Co-Chair (John Andrews), and Embassy Canberra provide paper to the Australian MTCR Plenary Chair for 2008/2009 and/or appropriate staff. Info addressees also may provide to host government officials as appropriate. In delivering paper, posts should indicate that the U.S. is sharing this paper as part of our preparation for the Information Exchange that will be held in conjunction with the MTCR Plenary in Canberra (November 3-7). NOTE: Additional IE papers will be provided via septels. END NOTE.

¶3. BEGIN TEXT OF PAPER:

SECRET//REL MTCR

NORTH KOREA'S MISSILE PROGRAM

#### Introduction

North Korea has an active ballistic missile development program, and is one of the world's leading suppliers of ballistic missiles and technology. North Korea, since the 1980s has supplied a number of ballistic missiles, missile components, or technology to a variety of customers, including to states in the Middle East. These sales have included complete Category I missile systems, as well as production technology and expertise. Despite the requirements of United Nations Security Council Resolution 1718, North Korea has maintained its right to sell ballistic missiles and continues to market missile-related items to countries in the Middle East while seeking to expand its missile activities worldwide. North Korea remains reliant on outside suppliers for a range of missile-related raw materials, which probably are destined for both its own missile program and those of its missile customers.

#### Program History

North Korea's liquid propellant missile program

was originally centered on technologies derived from Soviet missile designs obtained from Egypt. The Scud B (SS-1c/R-17/8K14) short-range ballistic missile (SRBM) was originally designed by the Soviet Union's Korolyev Design Bureau in the 1950s. Scud B technology has formed the basis for North Korea's Scud B, Scud C, No Dong, Taepo Dong-1 (TD-1), and Taepo Dong-2 (TD-2) systems.

North Korea's ballistic missile program started in the 1980s, when it reverse-engineered Soviet-made 300 km-range Scud B SRBMs acquired from Egypt. In return for these systems, North Korea assisted Egypt's efforts to domestically produce Scuds. Building on this success, Pyongyang began designing the 500 km-range Scud C in the mid-1980s. These Scuds have been exported to customers in the Middle East and are deployed in North Korea. Given their 20 years experience working with Scud technology, North Korea is able to design and produce extended-range variants of the Scud, capable of delivering payloads of over 500 kg to ranges up to 1,000 km.

North Korea used Scud technology to develop the No Dong medium-range ballistic missile (MRBM) that is deployed as part of North Korea's missile forces. The No Dong has a range of 1,300 km with a 500 kg payload, and has the capability to strike all of South Korea and Japan. On 5 July 2006, North Korea launched a mix of Scud and No Dong missiles from a location south of the DPRK's test facility at Taepo Dong.

Scud and No Dong technology also form the basis of North Korea's TD-1 and TD-2 systems. In 1998, the DPRK tested the Taepo Dong-1 by launching it as an SLV, showing that North Korea had successfully developed many of the essential technologies for staged missile systems vital for ICBM development. Pyongyang has also developed the follow-on system for the TD-1, the TD-2 ICBM/SLV. Although a more advanced design than the TD-1, the TD-2 still relies on Scud and No Dong technology. As part of the July 2006 missile launches, North Korea unsuccessfully attempted to launch the TD-2 from its Taepo Dong launch facility. In a two stage configuration, the TD-2 would have a range of over 9,000 km with a substantial weapons payload of approximately 500 kg. In a three stage configuration, the TD-2 could deliver the same sized payload up to 15,000 km, which could reach all of the United States and Europe, although likely with very poor accuracy.

Recently, North Korea has developed a new land-mobile intermediate-range ballistic missile (IRBM) derived from the Soviet SS-N-6 ('Serb'//R-27/4K10) submarine-launched ballistic missile (SLBM), which was designed by the Soviet Union's Makeyev Design Bureau in the 1960s. This technology represents a substantial advance in North Korea's liquid propellant technology, as the SS-N-6 had a much more advanced engine and used more energetic propellants-unsymmetrical dimethylhydrazine (UDMH) and nitrogen tetroxide (N2O4)-than those used in Scud-type missiles. The new IRBM is a single-stage missile and may have a range of up to 4,000 km with a 500 kg payload. Moreover, development of the new IRBM is even more disturbing since this more advanced propulsion technology allows North Korea to build even longer-range missiles-or shorter range missiles with greater payload capacity-than would be possible using Scud-type technology.

As the Scud market nears saturation, the DPRK has started to develop its own solid-propellant missile systems, as evidenced through the development of a new solid-propellant SRBM based on the Soviet SS-21, ('Scarab'//OTR-21/9M79 Tochka) SRBM, designed by the Soviet Union's Kolomna Design Bureau and manufactured by the Votkinsk Machine Building Plant in Russia and the Petropavlovsk Machinery Plant, Kazakhstan. This

new missile-called the Toksa by the United States-has a range of 120 km with a payload as large as 500 kg. This is a disturbing trend, since the DPRK can apply its experience in developing this missile to other, longer-range solid propellant missile designs. Solid propellant ballistic missiles are preferred by many countries due to their shorter logistics trail and launch times, which makes them more survivable than liquid propellant missiles.

#### Program Activities

North Korea has developed most of the necessary capability and infrastructure to produce and assemble its ballistic missiles indigenously. Its deployed forces include hundreds of Scud and No Dong missiles, and we expect the new IRBM and Toksa to be fielded in the coming years.

North Korea between 1999 and 2006 adhered to a self-imposed missile launch moratorium. North Korea broke this moratorium during its July 5, 2006 Scud, No Dong, and Taepo Dong-2 launches. In the wake of these launches, the UN Security Council unanimously adopted Resolution 1695, which demands that North Korea halt its missile programs and re-establish its flight-test moratorium. After North Korea's October 2006 nuclear test, the UN Security Council unanimously adopted Resolution 1718, this time invoking Chapter VII of the United Nations Charter. In addition to condemning the nuclear test, Resolution 1718 reaffirmed Resolution 1695's demand on flight tests, with further provisions deciding that the DPRK shall abandon "all other existing weapons of mass destruction and ballistic missile programmes in a complete, verifiable, and irreversible manner." 1718 also required that all UN member states act to prevent the transfer of ballistic missile materials and technologies to or from North Korea. The DPRK has not conducted a flight-test of its longer-range missiles since July 2006, but could decide to launch its missiles again at any time.

#### Technology Supplier

Pyongyang continues to sell ballistic missile-related technology to countries in the Middle East, while seeking to re-engage with former customers in the region. It also is likely pursuing new markets for its missiles, including in regions such as Southeast Asia and Africa. North Korea offers a wide-range of ballistic missile services. North Korea almost certainly is willing to offer any missile design in its inventory for sale to customers interested in complete systems, and can design missiles to meet specific customer needs. For customers with established missile programs or otherwise lacking interest in complete systems, North Korea provides missile refurbishment and technical expertise, ground support equipment and launchers, and production technology. North Korea can also broker precision machine tools and other missile-related raw materials for customers through Pyongyang's extensive procurement network.

#### Iran

Iran is one of North Korea's key missile customers. Since the late 1980s, Pyongyang has exported complete Scud B and Scud C missiles to Iran, as well as their production technology. Other missile technology acquired from North Korea is incorporated into the Iranian Shahab-3, which is based on North Korea's No Dong.

North Korea has probably provided Iran an MRBM variant of its new IRBM, called the BM-25. This technology would provide Iran with more advanced missile technology than currently used in its Shahab-series of ballistic missiles. This technology could

form the basis for future Iranian missile and SLV designs.

#### Syria

Syria is another of North Korea's key missile customers. North Korea has provided Syria with 500km-range Scud C missiles and technology as well as technology for a 700km-range Scud variant, referred to in Syria as the "Scud D." Syria has since achieved a domestic production capability, probably with extensive assistance from the DPRK. North Korea has also provided a range of other missile-related services to Syria, including production technology, ground support equipment, raw material, components, and technical assistance.

#### Pakistan

Pakistan's Ghauri MRBM is based on North Korean No Dong technology acquired in the 1990s.

#### Libya

North Korea assisted Libya's Scud program, including the development and production of 5 Scud C missiles. Libya in December 2003 agreed to remove all elements of its Scud C forces and to eliminate its Scud B stockpile. Libya pledged in 2004 to halt military trade with countries they consider to be a WMD concern, including North Korea.

#### Program Requirements

North Korea operates a vast network of embassy personnel, front companies, and commercial entities run by ethnic Koreans in other countries to obtain key technologies and materials needed to support both its own and its customer's missile programs. Members of this network often do not reveal their affiliation with the DPRK, or the DPRK as the end-user of critical goods, and utilize entities in Europe, China, East Asia, and South Asia to establish reliable routes for the transfer of controlled items.

Most foreign assistance to the North Korean missile program includes material North Korea finds too costly or advanced to manufacture domestically, including missile component testing equipment, heat-resistant materials for re-entry vehicles, heavy-duty vehicle chassis, missile tracking technologies, precision machine tools, specialty steels and aluminums, ball bearings, precision gyroscopes, solid-propellant precursor chemicals, and liquid-propellant precursors.

Although important for its own program, North Korea also uses this network to broker missile-related raw materials for its missile export customers.

#### Conclusion

North Korea will continue to develop and market missiles with increasing range, payload capacity, and sophistication. Given the DPRK's past missile technology acquisition practices, we remain vigilant for any attempts by North Korea to acquire missile-useful material or technology from foreign sources, including items associated with systems retired from Partner inventories.

International pressure against North Korea and its customers have had a significant impact on North Korea's missile sales. However, Pyongyang continues missile cooperation with its core customers and is still willing to offer MTCR Category I and Category II missile systems, their production technology, and missile maintenance and support services to interested customers.

END TEXT OF PAPER.

¶4. (U) Please slug any reporting on this or other MTCR issues for ISN/MTR. A word version of this document will be posted at [www.state.sgov.gov/demarche](http://www.state.sgov.gov/demarche).  
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